

# unDNEMO/unDNEMO-BT

## Dante™ Network Monitor with Bluetooth®



## User Manual

Date 05/17/2019

### IMPORTANT SAFETY INSTRUCTIONS

The symbols below are internationally accepted symbols that warn of potential hazards with electrical products.



This symbol, wherever it appears, alerts you to the presence of un-insulated dangerous voltage inside the enclosure -- voltage that may be sufficient to constitute a risk of shock.



This symbol, wherever it appears, alerts you to important operating and maintenance instructions in the accompanying literature. Please read the manual.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and third grounding prong. The wider blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by Attero Tech
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus.
13. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
14. Unplug this apparatus during lightning storms or when unused for long periods of time.
15. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
16. This apparatus shall be connected to a mains socket outlet with a protective earthing connection.
17. When permanently connected, on all-pole mains switch with a contact separation of at least 3mm in each pole shall be incorporated in the electrical installation of the building.
18. If rack mounting, provide adequate ventilation. Equipment may be located above or below this apparatus but some equipment (like large power amplifiers) may cause an unacceptable amount of hum of may generate too much heat and degrade the performance of this apparatus,
19. This apparatus may be installed in a industry standard equipment rack. Use screws through all mounting holes to provide the best support.



TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

### LIMITED TWO YEAR WARRANTY

The equipment is warranted for two year from date of purchase from Attero Tech, LLC against defects in materials or workmanship. This warranty does not cover equipment which has been abused or damaged by careless handling or shipping. This warranty does not apply to used or demonstrator equipment. Should any defect develop, Attero Tech, LLC will, at our option, repair or replace any defective parts without charge for either parts or labor. If Attero Tech, LLC cannot correct the defect in the equipment, it will be replaced at no charge with a similar new item. Attero Tech, LLC will pay for the cost of returning your equipment to you. This warranty applies only to items returned to Attero Tech, LLC, shipping costs prepaid, within two year from the date of purchase. This Limited Warranty is governed by the laws of the State of Indiana. It states the entire liability of Attero Tech, LLC and the entire remedy of the purchaser for any breach of warranty as outlined above. NEITHER ATTERO TECH, LLC NOR ANYONE INVOLVED IN THE PRODUCTION OR DELIVERY OF THE EQUIPMENT SHALL BE LIABLE FOR ANY INDIRECT, SPECIAL, PUNITIVE, CONSEQUENTIAL, OR INCIDENTAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THIS EQUIPMENT EVEN IF ATTERO TECH, LLC HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO EVENT SHALL THE LIABILITY OF ATTERO TECH, LLC EXCEED THE PURCHASE PRICE OF ANY DEFECTIVE EQUIPMENT.

This warranty gives you specific legal rights. You may have additional legal rights which vary from state to state.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules and EN55022. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at their own expense.



This symbol means the product must not be discarded as household waste, and should be delivered to an appropriate collection facility for recycling. Proper disposal and recycling helps protect natural resources, human health and the environment. For more information on disposal and recycling of this product, contact your local municipality, disposal service, or the business where you bought this product.

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## 1 – Overview

The unDNEMO and unDNEMO-BT are highly flexible Dante® network audio monitoring solutions that can be deployed in a wide array of pro-AV applications. The unDNEMO and unDNEMO-BT are capable of monitoring one audio channel selected from up to 64 configured Dante® network audio channels that are available on the network from Dante®-enabled audio equipment from any manufacturer. Audio selection is done with simple front panel controls. The unDNEMO and unDNEMO-BT utilize Attero Tech's unIFY Control Panel V3.1 or later software for simple setup and configuration.

In addition to the flexible Dante® audio monitoring functionality, the unDNEMO-BT is aimed at comprehensive audio monitoring applications and supports the following features:

- User selectable reception of one of up to 64 Dante® audio channels(mono) or 32 channels (stereo)
- Internal monitoring speaker
- Internal microphone with optional external mic input, allowing for talkback communications or for soft-conferencing applications in conjunction with the USB audio interface
- Bluetooth® headphone/headset connectivity with A2DP and HSP profiles (unDNEMO-BT only)
- Bluetooth® to Dante® auxiliary input (unDNEMO-BT only)
- Easy access front panel headset (headphone and mic connections) on 3.5mm connectors
- Volume, channel, mic mute, speaker mute, and source select buttons
- Easy-to-read OLED display for presentation of channel names, volume settings and configuration
- Full duplex USB audio for PC audio content and soft-conferencing applications
- PoE powered from compliant 802.3af PoE network switch or mid-span injector or, use an external +24VDC supply
- Dante® Daisy Chaining allows multiple unDNEMO/unDNEMO-BT devices, as well as other Attero Tech daisy chain enabled devices, to be connected over a single home-run to an Ethernet switch

### 1.1 – What's in the Box?

The unDNEMO-BT comes supplied with the following

- (1) unDNEMO or unDNEMO-BT device
- (1) USB Mini B to USB A 6ft cable

### 1.2 – Optional Extras

The following are available as options for the unDNEMO-BT and that may be ordered separately:

- 24V DC Power Supply - P/N: 900-00175

## 1.3 – Product Features



Figure 1 - Top Panel Features

1	Internal speaker
2	OLED Display
3	Backlit Keypad with Mute state indication
4	3.5mm T-S Headset Mic (Left) and 3.5mm Stereo Headphone TRS (Right)
5	Internal microphone
6	Internal Bluetooth® interface (unDNEMO-BT only)

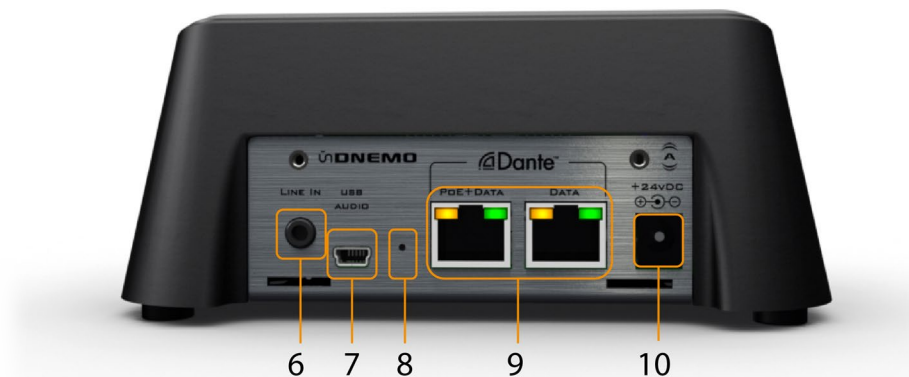


Figure 2 - Rear Panel Features

6	3.5m TRS Stereo Line Input
7	2x2 USB Audio interface on USB-mini B
8	Recessed Factory Reset switch
9	Daisy Chain Dante® Ethernet ports (Left port supports 802.3af PoE)
10	24V DC Power Input

**\*Note:** The unDNEMO and unDNEMO-BT have a label on the base of the unit that shows the devices MAC address. This is important for initial device identification as the last six digits make up part of the devices default network name that is shown when the device is detected by Dante® Controller.

## 2 – User Operation

Both the unDNEMO and unDNEMO-BT feature a number of different modes and capabilities. They support the following audio modes:

- Net Mode
- USB Mode
- Aux Input Mode (unDNEMO-BT only)
- Line Input Mode (unDNEMO only)
- All Input Mode

**\*Note:** The “Aux input mode” and “Line input mode” are essentially the same mode. The only difference is that the unDNEMO-BT has the addition of the Bluetooth® as an input option.

All of these audio modes except the Net Mode can be enabled or disabled for the intended application using the unIFY Control Panel software. For detailed software configuration instructions, consult with the integrated Help documentation included with the software. unIFY Control Panel software can be downloaded from <https://www.atterotech.com/resources/unifycontrol-panel>.

### 2.1 – User Interface Description

#### 2.1.1 – Display Layout

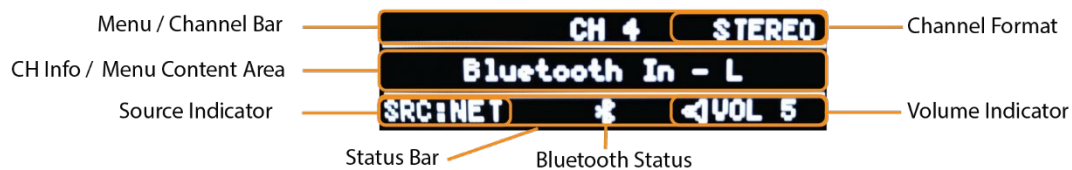


Figure 3 - Display Layout

The unDNEMO and unDNEMO-BT features a high visibility OLED display for high visibility in varying ambient light conditions. The display screens are organized into a title bar, main active content area and a status bar. The status bar always indicates the active audio source mode and the current volume settings. To save power, the unDNEMO display will turn itself off after 5 minutes of inactivity. Pressing any button will activate the display. The duration to timeout can also be adjusted in the unify Control Panel. The keypad will flash at 1 second intervals to indicate the device is asleep but still powered on. This will not affect audio output.

#### 2.1.2 – Keypad Layout

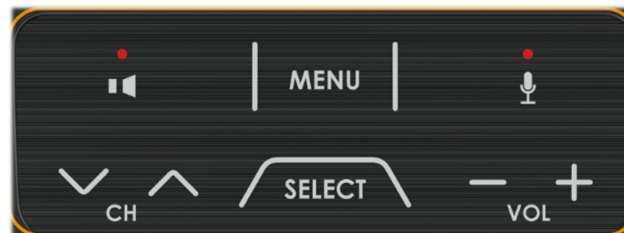


Figure 4 – Keypad Layout

The keypad controls consist of the following buttons:

- Output Mute
- Menu
- Mic Mute
- Channel/Nav Down
- Channel/Nav Up
- Source Select
- Volume Down
- Volume Up

The mute buttons always function to mute their respective audio functions. Additionally, the “Menu” button is always used to toggle between “Menu” and “Audio” modes.

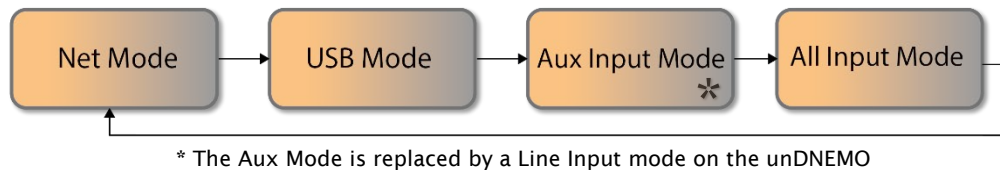
The remaining buttons are multi-function based on the active mode and will be further explained in the detailed descriptions of each audio and menu mode.



## 2.2 – Audio Modes

The user may cycle through the available audio modes by pressing the “Select” button to step through the available modes.

**\*Note:** that for all diagrams that show Bluetooth audio source / sink connectivity, this functionality is specific to the unDNEMO-BT and is omitted on the unDNEMO.



**Figure 5 - Audio Mode Screen Flow**

All audio modes are accessed based on the order shown in \* The Aux Mode is replaced by a Line Input mode on the unDNEMO

Figure 5. If any of the configurable modes are disabled, those modes will simply be skipped when selecting the next mode.

**\*Note:** By default, only the Net Mode is enabled, pressing the “Select” button when only Net mode is enabled will result in the message “Unsupported Function” to be shown briefly on the display.

In the audio modes, the volume “+” and volume “-” buttons always adjust the speaker and headphone volume. The volume range is 1 to 10. Additionally, the speaker mute button always operates as an audio mute function for the internal speaker and any attached headphones. The mute buttons indicate mute state by lighting their associated red LED when mute is.

When headphones are plugged into the unDNEMO-BT, the internal speaker is automatically disabled until they are removed.

## 2.3 – Bluetooth® Connectivity (unDNEMO-BT only)

### 2.3.1 – Pairing

The unDNEMO-BT can be paired with a Bluetooth® device for either wireless monitoring, or streaming audio from an enabled device.

- Pairing Headphones/Headset monitor
  - “Enable Menu Mode User Access” and “Enable Headphone/Headset support” **MUST** be selected in unIFY Control Panel.
  - Press “Menu” on the unDNEMO-BT, then “CH Up/Dwn” till Headset is selected. See Menu Mode Navigation section for more details. “Scan” will be the automatically selected mode.
  - Press “Select” to start scan. Make sure headphones/headset is in pairing mode. Once discovered, headphone/headset device name will show on the unDNEMO-BT display.
  - Press “Select to connect device.
- Pairing Bluetooth® audio equipped device
  - “Enable Bluetooth Bridge” **MUST** be selected in unIFY Control Panel.
  - Go do audio device Bluetooth® settings to start pairing. The unDNEMO is always in discoverable mode.
  - Complete pairing per audio device settings.

*Further information in the Bluetooth® menu options is available in the Menu Mode Navigation section 2.9.3 and 2.9.4.*

### 2.3.2 – Wireless Headphone / Headset Monitoring

The unDNEMO-BT supports high quality wireless audio monitoring utilizing the Bluetooth® A2DP profile which is a high fidelity but higher latency one way audio connection to headphones, headsets and speakers.

The unDNEMO-BT also supports lower latency, full duplex connectivity to headsets that support the HSP profile. When a compatible headset is connected, the Bluetooth® microphone is added to the microphone prioritization.

The following priority is applied to the internal, external and Bluetooth® microphone sources. The highest priority source will mute the low priority mics when present.

1. External wired microphone (highest priority)
2. Bluetooth® Microphone
3. Internal Microphone

When a headphone or headset is paired and connected to the unDNEMO-BT, the local volume controls on the unDNEMO-BT operate the volume to the headphone/headset. However, the speaker mute button only mutes and unmutes the local speaker. This allows normal operation of the unDNEMO-BT locally when the headphone/headset is located remotely allowing local monitoring.

Details of the connection management for the Bluetooth® setup can be found in the menu navigation section.

### 2.3.3 – Wireless Audio Bridging

In addition to wireless monitoring, the unDNEMO-BT allows users to stream their Bluetooth® audio equipped device to the unDNEMO-BT for local monitoring or remote bridging to the Dante® network.

**\*Note:** *The Bluetooth® streaming functionality is not supported while also monitoring wirelessly with Bluetooth®. The user or installer must select either the wireless monitoring or wireless streaming using the unIFY Control Panel software.*

**\*Note:** *Once paired/connected, the Bluetooth® friendly name is visible to other devices. However, while another device may be able to pair and save to its Bluetooth® device list when in this state, breaking the connection of the currently active device will not be possible.*

### 2.3.4 – Disable Bluetooth

Bluetooth can also be disabled by selecting “Disable Bluetooth” in the Bluetooth Setup section of unIFY Control Panel.

## 2.4 – Net Mode

The primary operating mode for Dante® audio monitoring applications is the Net mode. In this mode, Dante® audio channels are selected by the user from the front panel controls for simple and efficient audio monitoring applications.

Both the unDNEMO and unDNEMO-BT support 64 audio channels that can be configured for monitoring. Each channel can be allocated an audio channel from the Dante® network. Additionally, the installer has the option of configuring the Net mode to implement stereo monitoring. If stereo monitoring is enabled, then the maximum number of channels available to the end user is 32, as a single stereo channel consists of two mono channels, each of which are allocated a Dante® audio channel. The mono/stereo configuration is shown in the upper right of the display accordingly.

Use the channel up/down buttons to cycle through the available channels. Only channels that have had a Dante® channel assigned and have been enabled within the unIFY Control Panel software will be selectable. When selected, a subscription to the configured Dante® audio channel will be made as quickly as possible and that audio should then be heard through the internal speaker, connected headphones or Bluetooth® output device (NEMO-BT only).

When an audio subscription is made, the selected mono channel will be mapped to both the left and right headphone outputs, left and right Bluetooth® outputs (unDNEMO-BT only), and to the internal speaker. If the stereo monitoring mode is enabled, the left and right stereo signals will be mapped respectively to the stereo headphones and Bluetooth® outputs (unDNEMO-BT only) and a mono sum of the stereo signal will be routed to the internal speaker.

For each channel, the display indicates the slot number that has been assigned in the top area of the display and the associated channel name in the central viewing area. If a configured Dante® channel is selected but not available on the audio network for any reason, the screen will toggle between the channel name and the warning message “Channel Unavailable”.

**\*NOTE:** By default, the unDNEMO and unDNEMO-BT are not configured with any channel assignments and these must be configured before first use.

In this mode if the “Dante TX” is mode is enabled, audio is also available on the Dante® network from one of the unDNEMO or unDNEMO-BT’s audio inputs. The transmit source is selected via in the Net TX menu (See Section 2.9.5 – Menu Mode: Net TX Source). As notes



Figure 6 - Net Mode Screen

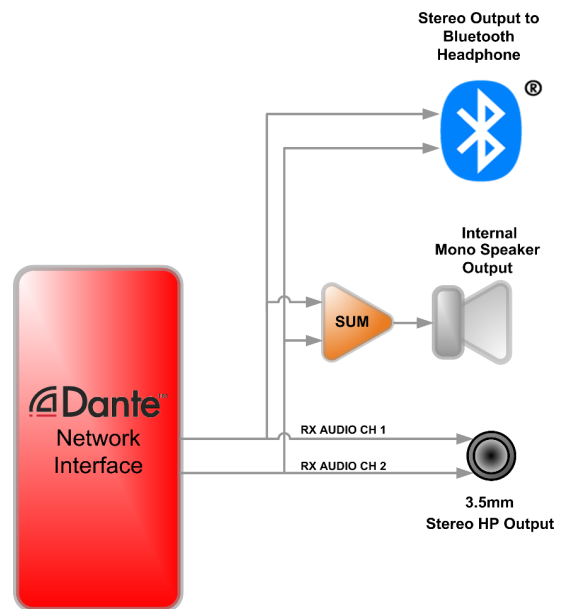


Figure 7 – Net Mode Internal Audio Flow w/o Dante® TX

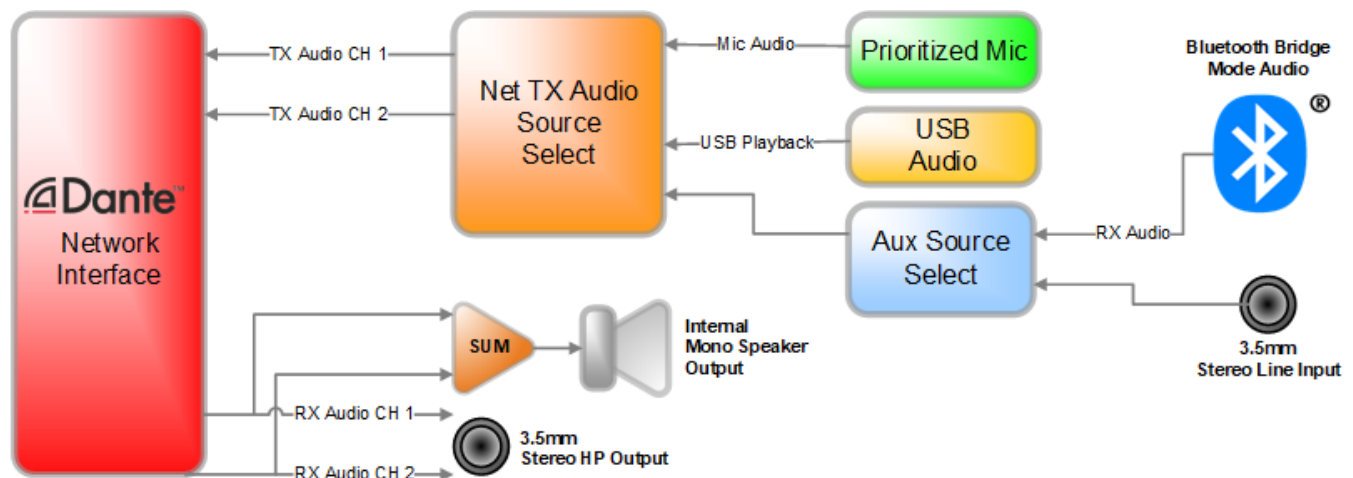


Figure 8 – Net Mode Internal Audio Flow w/ Dante® TX

**Net Mode Table**

	USB Audio (to PC)	Monitor Speaker	Headphone/Headset Output**	Bluetooth® Headphone/Headset (unDNEMO-BT only)	Dante™ TX
<i>Mic Input (prioritized)</i>					♦
<i>USB Audio (from PC)</i>					♦
<i>Line In (Aux Input - Line In for unDNEMO-BT)*</i>					♦
<i>Bluetooth Bridge Mode Audio (only unDNEMO-BT Aux Input)*</i>					♦
<i>Net Ch 1-64 In</i>	•	•	•	•	

\*NOTE: unDNEMO-BT Aux Input Mode must have either Line In or Bluetooth® selected. Both sources cannot be monitored simultaneously.

\*\*NOTE: When connected to Headphone/Headset Output, the Monitor Speaker will be disabled.

♦ Dante™ TX (only if enabled/selected)

## 2.5 – USB Mode

The USB mode allows the user to use the unDNEMO-BT as a USB soundcard when connected Mac or PC computer. In this mode, the playback audio from the PC is routed to the internal speaker, headphones if connected, or Bluetooth® connected headphones/headsets for the unDNEMO-BT. If the “Dante® TX” option is selected, the USB audio from the PC will also be available for transmission over the Dante® network. Microphone audio is routed from the unDNEMO-BT to the USB audio path allowing you to record to the connected PC. The audio playback features stereo audio capabilities when used in USB mode.

The device will detect the USB connection and show “Connected to Host” on the display if connected, and show “No Host Present” if no USB connection is present.



Figure 9 - USB mode

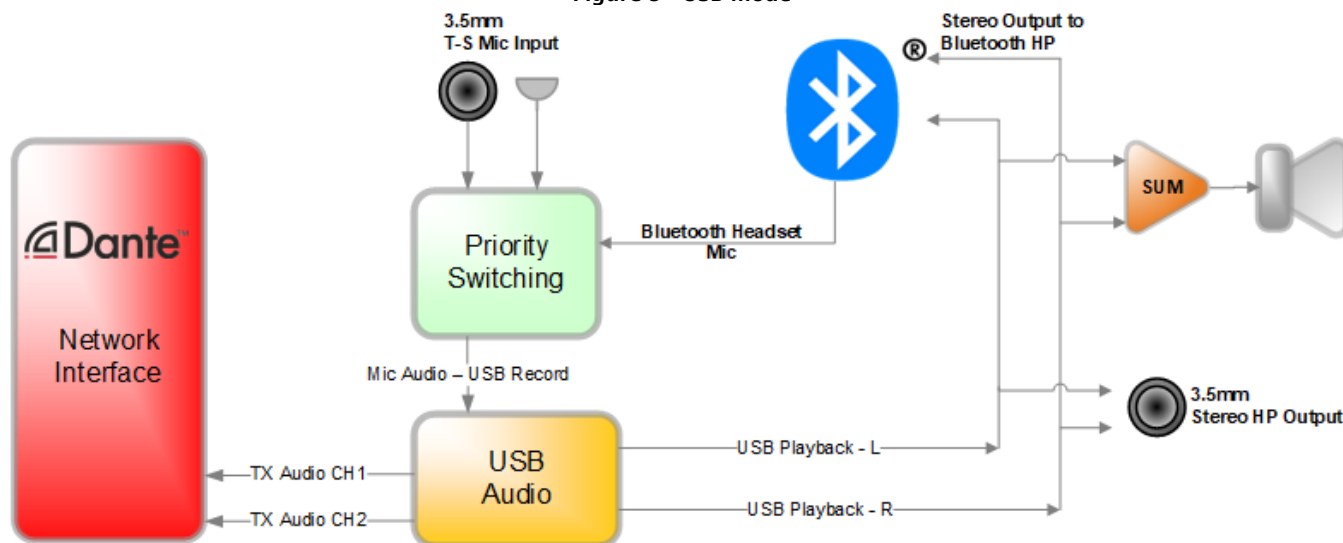


Figure 10 – USB Mode Internal Audio Flow

**\*NOTE:** The PC/Mac soundcard volume control will override the internal unDNEMO-BT volume control. Prior to disconnecting the USB connection, it is recommended that the volume be set to the maximum setting, such that the internal device volume is not limited by the soundcard volume when the soundcard is not in use. Power cycling the unit will reset the internal volume back to the soundcard volume defaults.

USB Mode Table

	USB Audio (to PC)	Monitor Speaker	Headphone/Headset	Bluetooth® Headphone/Headset (unDNEMO-BT only)	Dante™ TX
Mic Input (prioritized)	•				
USB Audio (from PC)		•	•	•	♦
Line In (Aux Input - Line In for unDNEMO-BT)*					
Bluetooth Bridge Mode Audio (only unDNEMO-BT Aux Input)*					
Net Ch 1-64 In					

**\*NOTE:** unDNEMO-BT Aux Input Mode must have either Line In or Bluetooth® selected. Both sources cannot be monitored simultaneously.

**\*\*NOTE:** When connected to Headphone/Headset Output, the Monitor Speaker will be disabled.

♦ Dante™ TX (only if enabled/selected)

## 2.6 – Aux Input Mode (unDEMO-BT only)

The AUX input mode allows the user to connect a line-level analog audio device to the rear panel 3.5mm TRS stereo analog input as an auxiliary audio source. Audio is routed from the aux input as a mono mix to the internal speaker or as a stereo source to connected headphones.

In addition, if the user or installer has enabled the Bluetooth® bridge functionality, the user may select the Bluetooth® audio receiver as the auxiliary source by pressing the channel up or down button to select either the actively paired Bluetooth® audio device or the line input.

If audio is not streaming via Bluetooth when switching sources, Line In will be muted. Press the Output Mute button two times to restore output.

If no Bluetooth® audio device is connected to unDNEMO-BT, the display will show “BT: No Connection”. If the Bluetooth® connection is active then the name of the connected device will be shown on the display and the Bluetooth® status indicator will be shown in the center of the status bar at the bottom of the display.

If Dante® TX audio features are enabled within the unIFY Control Panel software for the unDNEMO-BT, the Aux input audio will also be routed to the first and second Dante® audio transmit channels of the device for audio bridging applications. Dante® Controller or another 3<sup>rd</sup> party application must be used to route the audio to the intended Dante® receive device.



Figure 11 - AUX input mode

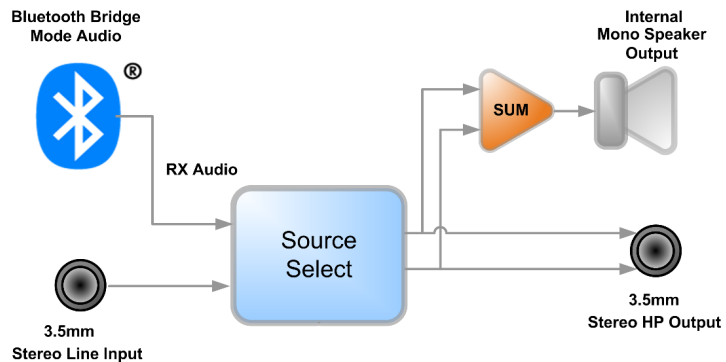


Figure 12 – Aux Input Mode Internal Audio Flow

## 2.7 – Line Input Mode (unDNEMO only)

The line input mode allows the user to connect a line-level analog audio device to the rear panel 3.5mm TRS stereo analog input as an auxiliary audio source.

Audio is routed from the line input as a mono mix to the internal speaker or as a stereo source to connected headphones.

If Dante® TX audio features are enabled within the unIFY Control Panel software for the unDNEMO, the line input audio will also be routed to the first and second Dante® audio transmit channels of the device for audio bridging applications. Dante® Controller or another 3<sup>rd</sup> party application must be used to route the audio to the intended Dante® receive device.



Figure 13 – Brightness Control

**Aux Input Mode Table (unDNEMO-BT only)**

	USB Audio (to PC)	Monitor Speaker	Headphone/Headset Output	Bluetooth® Headphone/Headset	Dante™ TX
Mic Input (prioritized)					
USB Audio (from PC)					
Line In		•	•	•	♦
Bluetooth Bridge Mode Audio*		•	•		♦
Net Ch 1-64 In					

\*NOTE: unDNEMO-BT Aux Input Mode must have either Line In or Bluetooth® selected. Both sources cannot be monitored simultaneously.

\*\*NOTE: When connected to Headphone/Headset Output, the Monitor Speaker will be disabled.

♦ Dante™ TX (only if enabled/selected)

**Line Input Mode Table (unDNEMO only)**

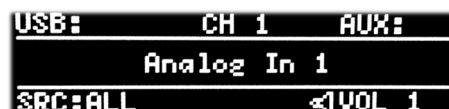
	USB Audio (to PC)	Monitor Speaker	Headphone/Headset Output	Dante™ TX
<i>Mic Input (prioritized)</i>				
<i>USB Audio (from PC)</i>				
<i>Line In</i>		•	•	♦
<i>Net Ch 1-64 In</i>				

**\*\*NOTE:** When connected to Headphone/Headset Output, the Monitor Speaker will be disabled.

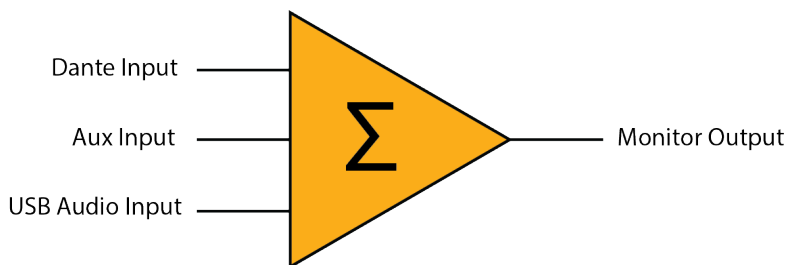
♦ Dante™ TX (only if enabled/selected)

## 2.8 – All Input Mode

The all input mode allows the user to simultaneously monitor a mix of the audio from the selected Dante® network audio channel, the line level analog input and the USB audio input. This is useful in applications that require monitoring audio from multiple, independent sources simultaneously.



**Figure 14 – All Input Mode**



**Figure 15 - All Input Mode Audio Routing**

In the All input mode, the USB, and aux input sources are indicated with a checkmark on the title bar of the display when they are connected.

The main content area of the screen shows the channel name of the network input audio, with the active channel number shown in the center of the title bar.

The channel Up/Down buttons are used to navigate the network audio channel selection just as they operate in the Net Mode.

The All Input mode does not support any Dante® TX audio routing capabilities.

**All Input Mode Table**

	USB Audio (to PC)	Monitor Speaker	Headphone/Headset Output	Bluetooth® Headphone/Headset (unDNEMO-BT only)	Dante™ TX
<i>Mic Input (prioritized)</i>					
<i>USB Audio (from PC)</i>		•	•	•	
<i>Line In (Aux Input - Line In for unDNEMO-BT)*</i>		•	•	•	
<i>Bluetooth Bridge Mode Audio (only unDNEMO-BT Aux Input)*</i>		•	•		
<i>Net Ch 1-64 In</i>		•	•	•	

**\*NOTE:** unDNEMO-BT Aux Input Mode must have either Line In or Bluetooth® selected. Both sources cannot be monitored simultaneously.

**\*\*NOTE:** When connected to Headphone/Headset Output, the Monitor Speaker will be disabled.

## 2.9 – Menu Mode Navigation

The unDNEMO and unDNEMO-BT feature a number of menu screens for showing status and basic device configuration. The menu mode access is also a configurable option that can be disabled for applications where the end user may only require limited access to the devices features. By default, the menu mode access is disabled and must first be enabled through unIFY. Once enabled, the menu mode may be entered by pressing the “Menu” button. While in menu mode, the display will indicate MENU: in the upper left of the screen. To exit menu mode, press the MENU button again.

The following diagram depicts the menu navigation. Use the Up and Down channel buttons to cycle between the “Display Brightness” and “Device Info” menus.

Use the “+” and “-” buttons to adjust the value or navigate the sub-menus for each menu mode screen.

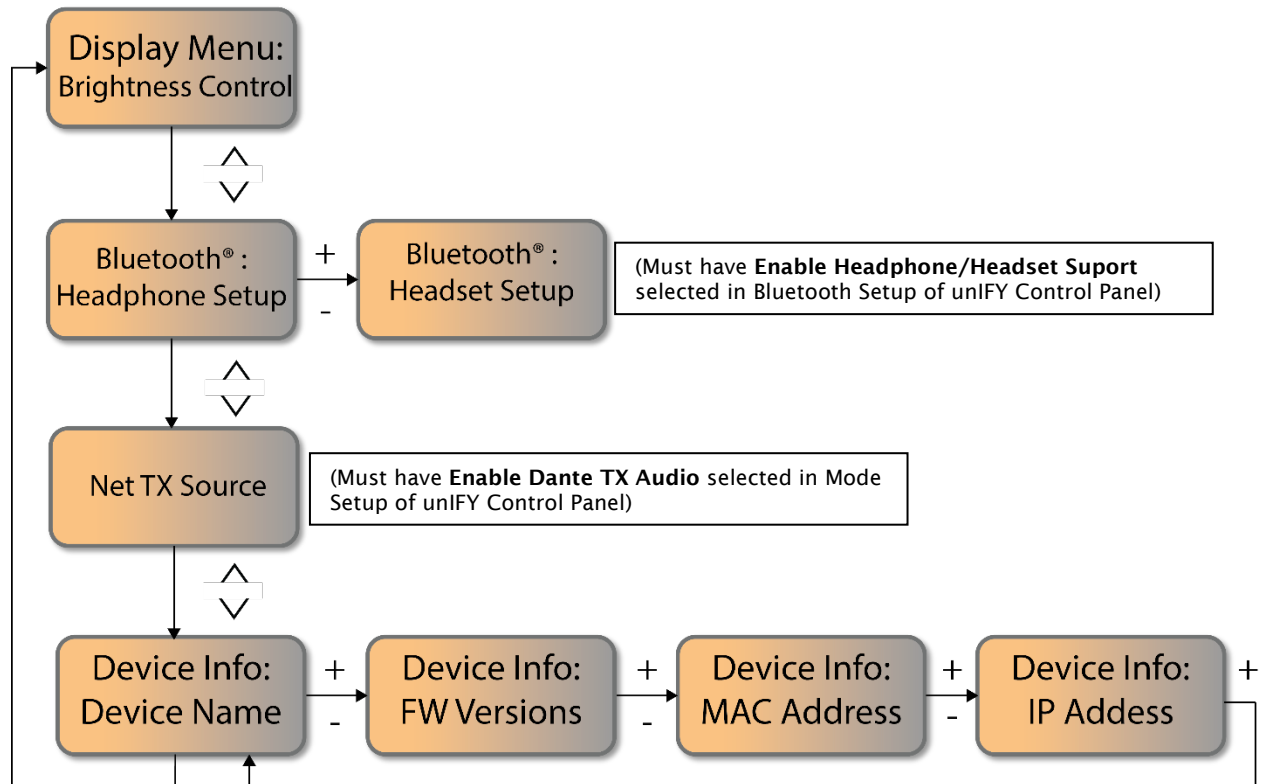


Figure 16 - Menu Mode Screen Navigation



### 2.9.1 – Menu Mode: Brightness Control

The brightness control menu allows the user to adjust the brightness level of the display and the keypad LED backlight brightness. Use the “+” and “-” button to adjust the selected brightness.

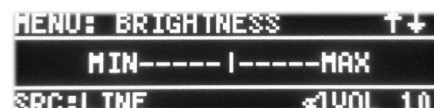


Figure 17 – Brightness Control

### 2.9.2 – Menu Mode: Device Info

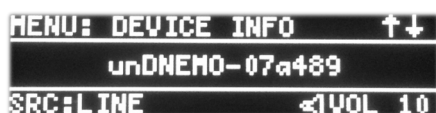


Figure 18 - Device Info: Name

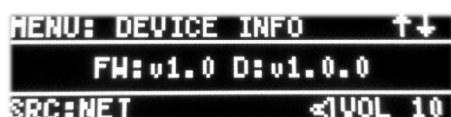


Figure 19 - Device Info: FW Versions

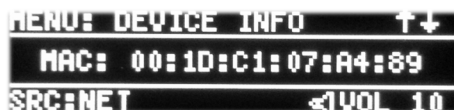


Figure 20 - Device Info: MAC



Figure 21 - Device Info: IP

The “Device Info” menus allow the user to view information about the device including the Dante® device name that is advertised on the Dante® network, the FW version information, the device MAC address and the current device IP address.

To navigate between the Device Info menu screen content, use the “+” and “-” buttons.

The “FW Versions” screen shows the version information for both the device application processor (shown as “FW:”) and the Dante® product version (shown as “D:”).

The MAC address screen shows the device MAC address. The MAC address is also referenced on a label on the bottom of the unit.

The IP address screen shows the current IP address of the device. To change the IP address settings, use Dante® Controller or other configuration software that supports general networking configuration for Dante® devices.

### 2.9.3 – Menu Mode: Bluetooth® Headphone Setup (unDNEMO-BT Only)

The Bluetooth® Headphone setup menu allows for pairing to headphones, speakers and other Bluetooth® devices that support the A2DP profile for high quality audio streaming. The unDNEMO-BT supports one active A2DP monitoring connection.

The “Headphones” menu shows the lists the last ten devices that have been paired with the unDNEMO-BT. If new devices are paired, or to find new devices that have been put in their pairing mode, use the “+” and “-” buttons to navigate to the menu entry that shows “SCAN” then press the “Select” button. This will cause the unDNEMO-BT to search for nearby, compatible devices and display them in the setup menu. Use the “+” and “-” buttons to navigate to the desired device in the list and press the “Select” button to connect.

If the device is successfully connected, the device will appear with an asterisk prefixed to the device name. Additionally, the Bluetooth® status icon will be shown in the status bar.

To disconnect, navigate to the actively connected device and press the “Select” button. The Bluetooth® status icon should disappear and the audio sent to the device should stop.



Figure 22 – Bluetooth® Headphone Setup

### 2.9.4 – Menu Mode: Bluetooth® Headset Setup (unDNEMO-BT Only)

The Bluetooth® headset setup menu allows for pairing and connection to headphones headsets and other Bluetooth® devices that support the HSP profile for low latency, bidirectional audio streaming. The unDNEMO-BT supports one active HSP connection.

The “Headset” menu shows the lists the last ten devices that have been paired with the unDNEMO-BT. If new devices are paired, or to find new devices that have been put in their pairing mode, use the “+” and “-” buttons to navigate to the menu entry that shows “SCAN” then press the “Select” button. This will cause the unDNEMO-BT to search for nearby, compatible devices and display them in the setup menu. Use the “+” and “-” buttons to navigate to the desired device in the list and press the Select button to connect.

If the device is successfully connected, then the device will appear with an asterisk prefixed to the device name. Additionally, the Bluetooth® status icon will be shown in the status bar.



Figure 23 - - Bluetooth® Headset Setup



Figure 24 – Scan for Devices

The headset microphone takes priority over the internal microphone when a connection is active. However, a wired external microphone remains the highest priority microphone source and will automatically take precedence over the Bluetooth® microphone when connected.

To disconnect, navigate to the actively connected device and press the “Select” button. The Bluetooth® status icon should disappear and the audio sent to the device should stop.

### 2.9.5 – Menu Mode: Net TX Source

This option is only available if the “Dante® TX’ option is enabled. It allows the user to configure which audio source is made available to the Dante® network when the unDNEMO-BT is in the Net Mode.

The available sources for the Dante® TX Audio in the Net mode are:

- Prioritized Mic Input
- USB Playback
- Aux Input (Line or Bluetooth®)

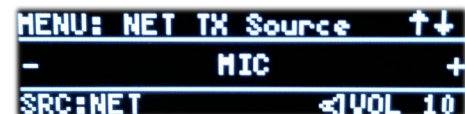


Figure 25 - Net TX Source menu

## 3 – System Setup

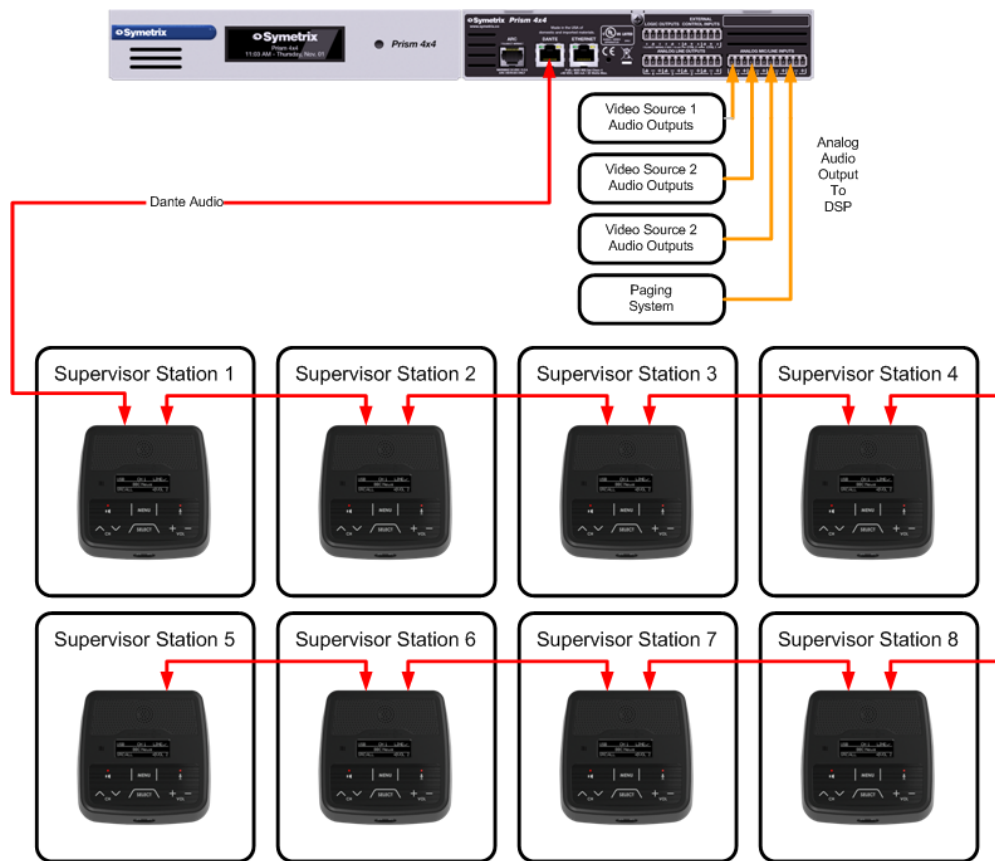
**\*Note:** All Attero Tech products are tested using UTP cabling and it is recommended that UTP cabling be used when installing them. STP cabling can be used for installation though care must be taken not introduce grounding issues into the system by doing so.

### 3.1 – Daisy Chain Deployment

The unDNEMO and unDNEMO-BT can be deployed in standard Ethernet networks with or without external switching hardware.

The first example below shows the Dante® port of an audio DSP connected to the Ethernet (Dante®) port of the unDNEMO/unDNEMO-BT at supervisor station 1. Due to the integrated Gigabit Ethernet switch, other unDNEMO/unDNEMO-BT devices can be daisy-chained together to eliminate the need for any external Ethernet switches.

**\*Note:** Each unDNEMO/unDNEMO-BT would require a local 24V DC power supply connection. Daisy chaining of PoE is not possible.



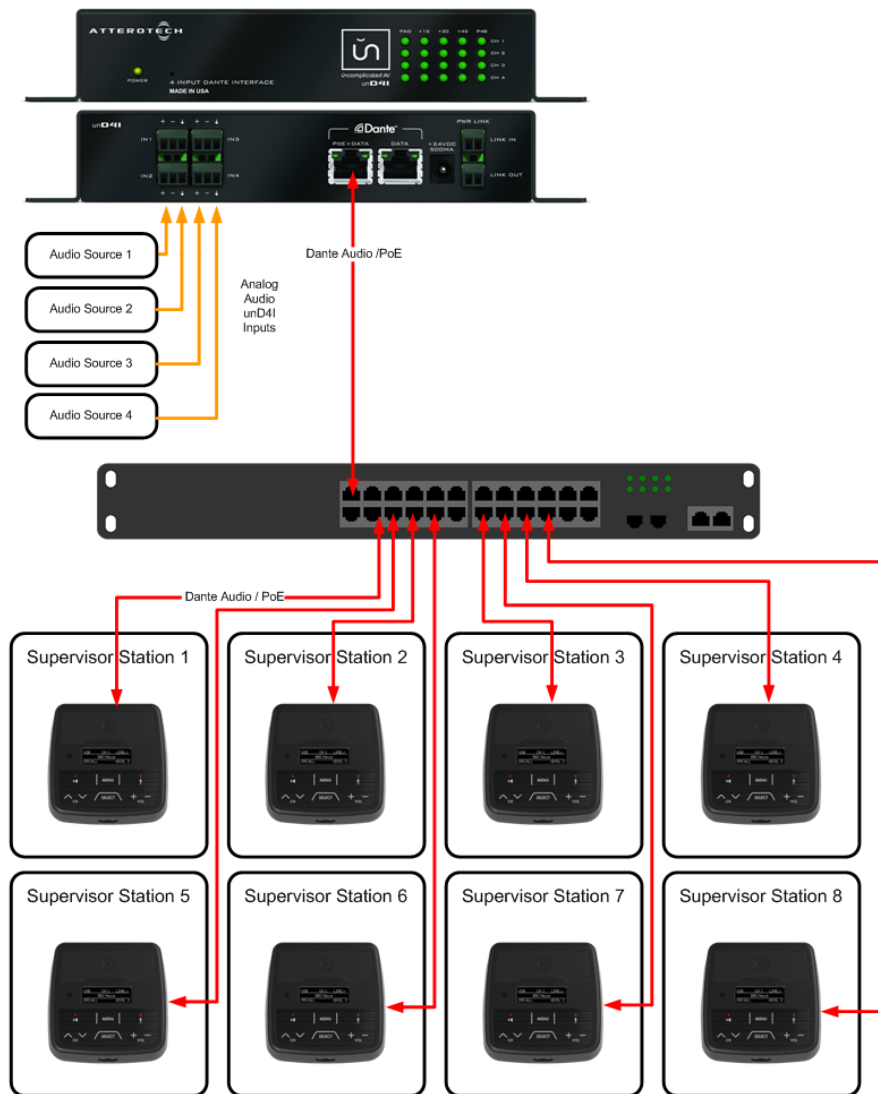
**Figure 26 – Daisy Chain Deployment**

**\*NOTE:** It is not recommended to connect high channel count Dante® devices to the end of any daisy-chain segment. The daisy chain feature is intended to ease deployment in situations where additional Ethernet switches may be obtrusive and difficult to install. The daisy-chain feature is not intended to be use as a high bandwidth connection between two or more Ethernet switches to bridge network segments.

## 3.2 – PoE Deployment

The unDNEMO and unDNEMO-BT support PoE 802.3af power on the left-most Ethernet port labeled “PoE+Data” on the rear panel of the unit. To utilize PoE, connect CAT-5e or better cabling between the PoE port of the unDNEMO/unDNEMO-BT and an 802.3af compliant PoE Ethernet switch or mid-span power injector.

In this configuration, PoE cannot be daisy-chained and each device requires a CAT-5 connection back to the Ethernet switch. The following diagram shows the unDNEMO-BT devices used with an Ethernet switch providing both PoE and Dante® connections, with audio sourced from an Attero Tech unD4I 4-channel analog input to Dante® interface.



**Figure 27 – PoE Deployment**

### 3.3 – unIFY Control Panel Notes

The unIFY Control Panel software provides users with a simple tool to monitor and configure Atterotech devices. It detects connected devices on the configured network automatically showing them in a device list. Once a device is discovered, unIFY can present further details about the device. For unDNEMO and unDNEMO-BT devices, unIFY is also used to configure the device settings such as the audio mode and Bluetooth® settings (unDNEMO-BT) among others. The latest version of the unIFY Control Panel software can be downloaded at <https://www.atterotech.com/resources/unifycontrol-panel>.

The configuration software for the unDNEMO-BT is organized into the following key sections:

- Channel Configuration
- Device Configuration

**\*Note:** The unDNEMO/unDNEMO-BT settings are volatile and parameter changes will be lost if the unit is reset or power cycled. However, unIFY Control Panel can be used to save presets and change the power-on defaults to prevent loss of settings. This is a manual process and is not automatic. This is done in our unIFY software by using the "Save Preset" button and clicking the "Save to Device" button with the "Default" option selected. See the unIFY Control Panel manual for steps to save.

#### 3.3.1 – Channel Configuration Section

All Net Channel naming and routing for unDNEMO/unDNEMO-BT should be set up in unIFY Control Panel. Unlike most Dante® networked devices, the unDNEMO and unDNEMO-BT prioritize network routing via unIFY over Dante® Controller. This is due to the ability to switch monitoring channels on the device itself, changing how Dante® Controller sees the hardware. This is further explained in 3.4 – Dante® Configuration Notes and detailed setup steps are available in the unIFY Control Panel manual.

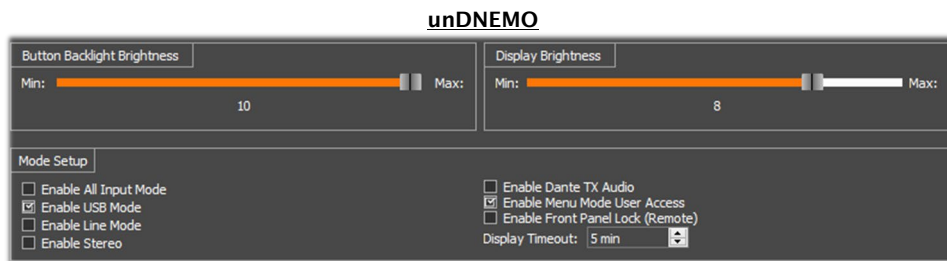


The screenshot shows the 'Channel Configuration' window. It contains a table with three columns: 'Device', 'TX Channel', and 'Display Name'. There are three rows, each with a checkbox in the 'Device' column and 'No Channels Assigned' in the 'Display Name' column. At the bottom, there are two buttons: 'Clear Channel Configuration' and 'Apply Channel Configuration'.

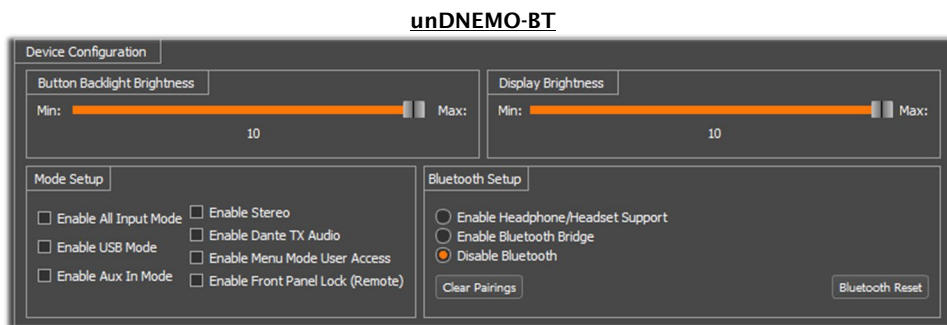
Device	TX Channel	Display Name
<input type="checkbox"/>		No Channels Assigned
<input type="checkbox"/>		No Channels Assigned
<input type="checkbox"/>		No Channels Assigned

#### 3.3.2 – Device Configuration Section

The Device Configuration Section allows adjustment to the hardware parameters from Button/Display Brightness and Display Timeout timer (unDNEMO only) to selecting Audio Mode and Bluetooth® Settings (unDNEMO-BT only).



The screenshot shows the 'unDNEMO' Device Configuration window. It has two tabs: 'Button Backlight Brightness' and 'Display Brightness'. The 'Button Backlight Brightness' slider is set to 10. The 'Display Brightness' slider is set to 8. Below these are two sections: 'Mode Setup' and 'Display Timeout'. The 'Mode Setup' section has checkboxes for 'Enable All Input Mode', 'Enable USB Mode', 'Enable Line Mode', 'Enable Stereo', 'Enable Dante TX Audio', 'Enable Menu Mode User Access', and 'Enable Front Panel Lock (Remote)'. The 'Display Timeout' section has a dropdown menu set to '5 min'.



The screenshot shows the 'unDNEMO-BT' Device Configuration window. It has two tabs: 'Button Backlight Brightness' and 'Display Brightness'. The 'Button Backlight Brightness' slider is set to 10. The 'Display Brightness' slider is set to 10. Below these are two sections: 'Mode Setup' and 'Bluetooth Setup'. The 'Mode Setup' section has checkboxes for 'Enable All Input Mode', 'Enable USB Mode', 'Enable Aux In Mode', 'Enable Stereo', 'Enable Dante TX Audio', 'Enable Menu Mode User Access', and 'Enable Front Panel Lock (Remote)'. The 'Bluetooth Setup' section has radio buttons for 'Enable Headphone/Headset Support', 'Enable Bluetooth Bridge', and 'Disable Bluetooth'. There are also 'Clear Pairings' and 'Bluetooth Reset' buttons.

### **3.4 – Dante® Configuration Notes**

In general, there is little to no additional configuration required to successfully utilize the unDNEMO-BT devices in a Dante® network other than the initial channel configuration and setup required using the unIFY Control Panel software.

However, if the unDNEMO or unDNEMO-BT are utilized in a Dante® network with audio transmit channels that are already configured to transmit to one or more Dante® receive devices, the potential exists that the unDNEMO/unDNEMO-BT will not be able to subscribe to the Dante® transmitter as the number of unicast receivers assigned to transmitting device and channel may be exceeded.

To mitigate this issue, the desired audio channels may be placed in multicast flows such that there is no limit on the number of Dante® receive devices. In systems where a large number of unDNEMO/unDNEMO-BT devices are utilized, this is the recommended practice to mitigate these channel subscription limitations that exist when only using unicast Dante® audio transmission. However, care should always be taken to understand how much multicast bandwidth exists on the Dante® network, and utilize the tools within Dante® Controller to identify any networking and Dante® configuration issues that may arise as a result.

### **3.5 – Factory Reset**

The unDNEMO and unDNEMO-BT have a factory reset option. Using it will reset all the devices parameters back to their factory defaults including all the Dante® settings such as device name, channel names as well as the device settings such as input select. The devices IP address mode is also reset back to getting a dynamic IP.

Access to the factory reset button is through a small circular hole on the rear of the unit between the USB and PoE Ethernet connector.

To use the factory reset, insert a small screwdriver or paperclip into the hole to activate the factory reset switch. There should be a noticeable “click” when it’s activated. Hold the switch in for approximately 10 seconds then release. If the factory reset was successful, a few seconds after releasing the switch, the unit will reset itself.

## 4 – Mechanical Information

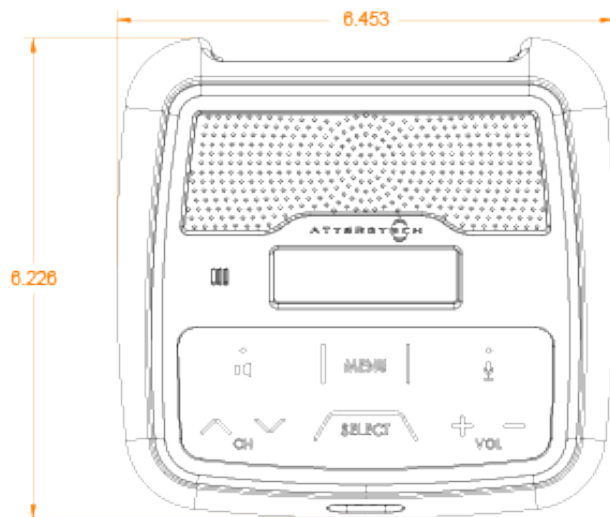


Figure 28 - Top View Dimensions

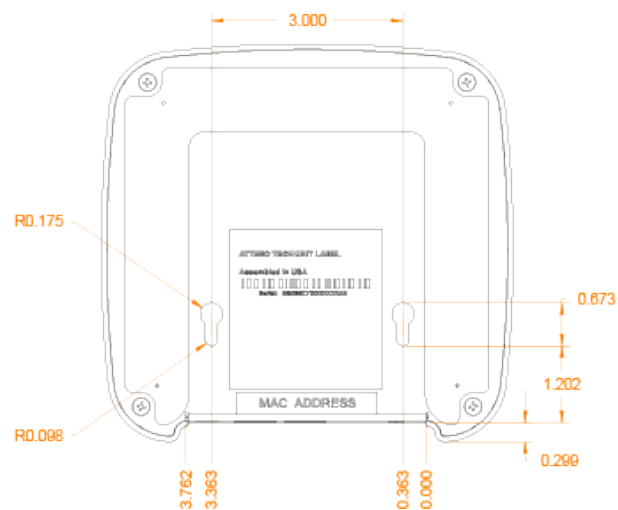


Figure 29 - Bottom View Dimensions

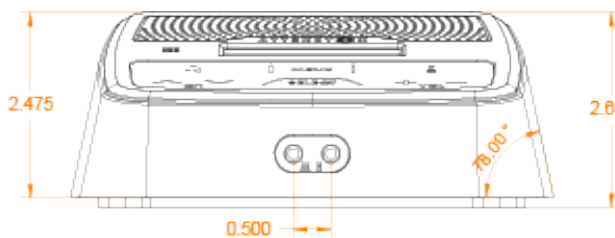


Figure 31 - Front View Dimensions

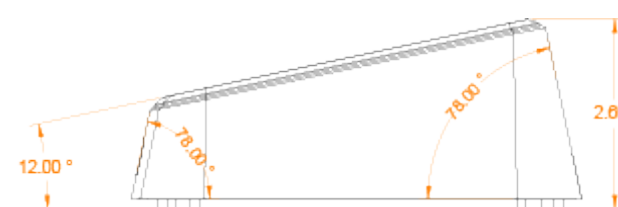


Figure 30 - Side View Dimensions

### 4.1 – Mounting Information

The unDNEMO and unDNEMO-BT is designed to be placed on a smooth surface and features a non-slip pad on the base of the unit.

For mounting on non-horizontal surfaces, the base of the unit features two keyhole openings for mounting that accept a #6 size screw head. Care should be taken not to insert the screw head deeper than 6.00mm from the base of the unit.

## **5 – ARCHITECTS & ENGINEERS SPECIFICATION**

### **5.1 – unDNEMO**

The Dante® network monitor shall be able to monitor any one of up to 64 Dante® audio flows, and provide user selection of both channel and volume. The unit shall include a speaker and a headphone jack for reproduction of the Dante® audio. The unit shall provide bi-directional USB 1.1 audio connectivity, and install without additional drivers on both Windows and Mac PCs. The unit shall provide one mic level and one line-level analog input, each on a 3.5mm connector. The unit shall be able to receive power from either the rear panel Dante® interface over the Ethernet cable from a compliant 802.3af PoE network device or an external +24VDC power supply. A second rear panel Dante® interface shall provide for daisy chain of the Dante® network.

The Dante® interface shall be compliant with the RoHS, REACH and WEEE directives.

The Dante® interface unit shall be compliant with the EMI/EMC requirements for FCC (Part 15 Class A) and CE (EN 55022 Class) A.

The Dante® interface shall be the Attero Tech unDNEMO.

### **5.2– unDNEMO-BT**

The Dante® network monitor shall be able to monitor any one of up to 64 Dante® audio flows, and provide user selection of both channel and volume. The unit shall include a speaker, a headphone jack and Bluetooth® for reproduction of the Dante® audio. The unit shall provide bi-directional USB 1.1 audio connectivity, and install without additional drivers on both Windows and Mac PCs. The unit shall provide one mic level and one line-level analog input, each on a 3.5mm connector. The unit shall be able to receive power from either the rear panel Dante® interface over the Ethernet cable from a compliant 802.3af PoE network device or an external +24VDC power supply. A second rear panel Dante® interface shall provide for daisy chain of the Dante® network.

The Dante® interface shall be compliant with the RoHS, REACH and WEEE directives.

The Dante® interface unit shall be compliant with the EMI/EMC requirements for FCC (Part 15 Class A) and CE (EN 55022 Class) A.

The Dante® interface shall be the Attero Tech unDNEMO-BT.



## 5.3 – Device Specifications

Audio Inputs	
Input Types:	Internal electret microphone
	External electret headset microphone connectivity with internal bias (3.5mm T-S)
	Line Input: 3.5mm TRS
Input Impedance:	Line Input: 10kOhm
Maximum Input Levels:	Line Input: +12dBu
Mic Bias Voltage:	1.65V
Audio Input Performance	
THD+N:	Line Input: <0.02% @ 1kHz
Frequency Response:	Line Input: 20Hz – 20kHz, +/- 1dB
Audio Outputs	
Speaker Type:	Internal 1" Driver
Attenuation Range	Software controlled volume (1 to 10(max), 6dB per step)
Headphone Output	Stereo 3.5mm TRS
Maximum Output Levels:	Speaker: 1W @ max volume
	Headphone: 1Vrms into 32 Ohms (minimum load)
Audio Output Performance	
THD+N:	<0.01% @ 1kHz, input signal 3dB below maximum
Frequency Response	Headphone: 20Hz – 20kHz +/- 1dB
Bluetooth® Audio (unDNEMO-BT Only)	
Supported Bluetooth® Profiles	Bluetooth® v3.0 A2DP (Headphone and bridging modes) HSP (Headset mode)
Bluetooth® range	10 meters typical

Dante® Network	
Physical Level:	Ethernet
Connector(s):	Dual RJ-45
Cable Quality:	CAT-5e or better
Transmission Speed:	1000 Mbps
Supported Sample Rates	48kHz
Minimum Dante® Network Latency	1ms
Power Requirements	
PoE	802.3af PoE PD compliant
External Power	24V DC, center positive barrel jack, 6.0mm OD / 2.0mm ID
Power Consumption	< 6W Max
Cable Quality:	CAT-5e or better
Product Compliance	
FCC CFR 47 Parts 15B ICES-003 CE (EN55022) RoHS REACH	
Physical Dimensions	
Width	6.45"
Height	2.6"
Depth	6.23"
Weight	1.13 lbs
Environmental Specifications	
Operating Temperature	0 to 40 C